

## CLAIMS

1. An interface system, comprising:
  - 5 a portable communication device having a configurable external interface;  
an accessory having a memory with physical configuration and event mapping  
descriptors pertaining to the accessory; and  
portable communication device software capable of reading the descriptors and  
configuring the configurable external interface in response thereto.

2. An interface system, comprising:
- a radio having a configurable external interface;
- at least one accessory compatible with the configurable interface and containing at
- 5 least one memory device capable of storing descriptors;
- at least one physical configuration descriptor stored in the accessory containing
- interface configuration information for that accessory;
- at least one event mapping descriptor stored in the accessory containing event
- mapping information for the interface of that accessory;
- 10 radio software for reading the interface configuration information and the event
- mapping information contained in the descriptors, and configuring the
- configurable external interface and processing events.
3. The interface system of claim 2, wherein the physical configuration descriptor
- 15 interface configuration information includes data direction, logic sense, and
- priority.

4. An interface system for coupling a radio having an external radio interface to an accessory, comprising:

5 at the radio:

a microcontroller having a configurable general purpose input output (GPIO) interface connected to the external radio interface, the GPIO interface being configured as an input device upon radio power-up, and the radio periodically checking the external radio interface to detect the presence of an accessory;

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at the accessory:

a single wire memory device containing descriptors providing information about the accessory; and

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upon accessory detection by the radio, the radio reads the contents of the single wire device and configures the external radio interface in response thereto.

5. The interface system of claim 4, wherein the GPIO comprises an extended GPIO to limit the interface system to predetermined accessories.

6. An interface system, comprising:

a radio having a microcontroller with bi-directional GPIOs and an external radio interface;

a plurality of accessories each having physical configuration descriptors and  
5 event mapping descriptors stored therein and each having an external radio interface;  
and

the external radio interface automatically being configured to each external accessory interface based on the physical configuration and event mapping descriptors of each of the plurality of accessories.

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7. The interface system of claim 6, wherein the physical descriptors provide logic highs and lows to the GPIOs.

8. The interface system of claim 6, wherein the radio modifies performance of  
15 an accessory from the plurality of accessories based on the physical descriptor of that accessory, by the radio selectively controlling the logic of the GPIOs.

9. The interface system of claim 6, wherein the radio rejects an accessory from the plurality of accessories based on the physical descriptor of that accessory.

10. A radio architecture for interfacing with an accessory, the radio architecture including:  
an accessory interface manager for receiving event mapping descriptors and physical configuration descriptors from the accessory; and  
5 an accessory interface driver coupled to the accessory interface manager.
11. The radio architecture of claim 10, wherein the physical configuration descriptors contain data direction and logic sense.
- 10 12. The radio architecture of claim 10, wherein the event mapping descriptors contain event identifier, control type, and GPIO number.
13. The radio architecture as described in claim 12, wherein the event identifier specifies an event code in the radio which is an indication event.
- 15 14. The radio architecture as described in claim 13, wherein the event identifier specifies an event code in the radio which is a user input event.
- 15 15. The interface system as described in claim 14, wherein the indication events and user input events are subdivided into logical and physical events yielding:  
20 physical input event, logical input event, physical output event, and logical output event.

16. The radio architecture of claim 15, wherein the physical input event is assigned to a single GPIO pin configured as an input thereby providing an external means to activate a physical radio button.

5           17. The radio architecture of claim 15, wherein the physical output event is created when a logical event, created by an ergonomic manager and application field, is sent to the user interface task which then translates the logical indicator into a physical indicator using the translation table.

10           18. The radio architecture as described in claim 10, wherein at least two logical events are set up in the event mapping descriptor using an OR relationship.

            19. The radio architecture as described in claim 10, wherein at least two logical events are set up in the event mapping descriptor using an AND  
15           relationship.

            20. The radio architecture as described in claim 10, wherein at least two physical events are set up in the event mapping descriptor using an OR  
20           relationship.

            21. The radio architecture as described in claim 10, wherein at least two physical events are set up in the event mapping descriptor using an AND  
relationship.

22. The radio architecture system of claim 10, wherein the physical configuration descriptors are encrypted.

23. The radio architecture system of claim 10, wherein the physical  
5 configuration descriptors are digitally signed.

24. The radio architecture system of claim 10, wherein the event mapping descriptors are encrypted.

10 25. The radio architecture system of claim 10, wherein the event mapping descriptors are digitally signed.

26. The radio architecture of claim 10, wherein for physical events, the accessory interface manager sends the physical mapping event to the user input  
15 manager, and for output events, the accessory interface manager monitors outputs from a low level display / indicator manager and activates/deactivates display and indicator drivers.

27. An interface system for an accessory and communication device,  
including:

- 5 a memory device in the accessory, the memory device having a physical  
configuration descriptor and an event mapping descriptor stored therein, the physical  
configuration descriptor and event mapping descriptor for configuring the interface  
system.